**CALIFORNIA WILDLIFE HABITAT RELATIONSHIPS SYSTEM**
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B191 Dunlin Calidris alpina
Family: Scolopacidae Order: Charadriiformes Class: Aves

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## DISTRIBUTION, ABUNDANCE, AND SEASONALITY

Among the most abundant wintering shorebirds in California (Cogswell 1977), but does not breed in the state. Most numerous on intertidal mudflats of estuarine habitats, where peak numbers occur from late October through mid-November (Storer 1951, Page et al. 1979). Frequents a variety of lacustrine and wet meadow habitats throughout California during fall and spring migrations, but in winter resides only on coastal estuaries, adjacent inland areas, and in the Central Valley (Grinnell and Miller 1944, McCaskie et al. 1979, Garrett and Dunn 1981). Common on bay tideflats, on salt ponds at high tide (especially on San Francisco Bay), and along upper reaches of intertidal saline emergent wetlands. Uncommon on sandy beaches on outer coast and rocky intertidal habitats. Away from coast, occurs along lake and pond margins, marsh edges, and on wet meadows (Cogswell 1977).

## SPECIFIC HABITAT REQUIREMENTS

Feeding: Feeds by deep or shallow probing, and by surface pecking. On the breeding grounds, diet consists mainly of larval and adult crane flies (Tipulidae) and midges (Chironomidae) (Holmes 1966b). In the arctic, feeds on high ground, wet marshes, pond margins, coastal ponds, and lagoons. During the nonbreeding season in estuarine habitats, takes a variety of polychaete worms, small crustaceans, and small mollusks (Cogswell 1977). On intertidal mudflats, typically feeds in belly-deep water, and follows receding tides far out onto the flats.

Cover: Needs roosts above high tide in estuarine habitats (Page et al. 1979). Preferred sites include upper reaches of salt marshes, salt ponds, upland fields and pastures.

Reproduction: Has a circumpolar breeding distribution in arctic latitudes. Nests in relatively well-drained or upland tundra, rarely in lowland marshes (Holmes 1966a). In general, prefers low, grassy or sedge-covered tundra. Nest often placed at the base of a grass tussock, and lined with bits of vegetation (Johnsgard 1981).

Water: No additional data found.

Pattern: In California, frequents pond and lake margins, wet fields, and especially intertidal mudflats.

## SPECIES LIFE HISTORY

Activity Patterns: Yearlong, circadian activity. Migrates at night. In estuarine environments, may feed nocturnally when tidal conditions permit.

Seasonal Movements/Migration: Begins to leave arctic breeding areas in late July

(Holmes 1966a), but does not fly directly to wintering areas as most shorebirds do. Stops at coastal estuaries along Alaskan Peninsula for to 3 mo (MacLean and Holmes 1971, Gill and Jorgen 1979). From these staging areas, flies to wintering grounds along coast from British Columbia to Mexico (Gill and Jorgenson 1979). With this delayed migration, adults and young arrive on wintering grounds together (Page et al. 1979). In California, may arrive as early as mid-July, but major influx occurs from late September to mid-October (Page et al. 1979). Numbers remain high on coastal estuaries through winter. Northward spring migration apparently takes place in March and April. By mid-May most have departed (McCaskie et al. 1979), but a few nonbreeders may summer in the state.

Home Range: On the nesting grounds, all feeding takes place within the nesting territory. After the eggs hatch, adults and chicks leave the nest territory to feed in wet marshes. A 4-yr study at Barrow, Alaska, reported nest density of 4-9 nests/40.5 ha (100 ac) (Holmes 1966a). Apparently does not defend a feeding territory on the wintering grounds (Myers et al. 1979).

Territory: Male defends a nesting area on snow-free tundra. Territory varied from 5-7 ha (12-17 ac) (Holmes 1966a). Male and female often return to same territory year after year (Soikkeli 1967).

Reproduction: Arrives on breeding grounds in late May and early June. Egg laying begins in early June and continues until early July, when most eggs hatch. By early September, almost all have departed breeding grounds in northern Alaska (Holmes 1966a). A monogamous, solitary nester. Clutch averages 4 eggs. Usually single brooded, but a second clutch may be produced if the first is destroyed. Incubation period 21-22 days, and both sexes incubate. Precocial young leave nest within hours of hatching; initially cared for by both parents. Female often leaves brood after several days. Young first fly at about 28 days.

Niche: Formerly called red-backed sandpiper. Major egg and chick predators are parasitic and long-tailed jaegers, and arctic foxes. Severe weather and activities of lemmings also cause egg losses. Nest destruction at Barrow, Alaska, was 20-25% (Holmes 1966a). About 20-25% of young survived first yr, and annual adult mortality was about 27% (Boyd 1962, Soikkeli 1967). On wintering grounds in central coastal California, a variety of hawks, falcons, and owls prey on dunlin. In 1972-1973 winter raptors took approximately 21% of 1200 individuals on Bolinas Lagoon (Page and Whitacre 1975). Merlin appears to be an important predator in central coastal California (Kus 1982).

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